

**DRAFT**

**PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA**  
**ENERGY DIVISION**  
**ITEM#50 I.D.#5586**  
**RESOLUTION E-3992**  
**7/20/06**

**R E S O L U T I O N**

Resolution E-3992. PG&E, SCE & SDG&E

By Advice Letters PG&E 2793-E, SCE 1969-E & SDG&E 1777-E filed on February 27, 22 & 27, 2006, respectively.

PG&E filed substitute sheets for AL 2793-E to update earlier approved revisions to Schedules NEM, NEMBIO and NEMFC on March 2, 2006, and for Schedule NEMCT to correct section numbering on March 22, 2006.

Adopts a method of crediting under Net Energy Metering (NEM) tariffs the net energy exported from eligible<sup>1</sup> (renewable) generators in Customer-Generating Facilities that are comprised of multiple NEM-eligible and NonNEM-eligible generators in compliance with Public Utilities Code Section 2827 *et seq.* and Decision 05-08-013; and resolves related issues.

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**SUMMARY**

This Resolution rejects the proposals to add a new tariff combining multiple existing tariffs to implement Net Energy Metering (NEM) for eligible customer-generation (self-generation) facilities that are comprised of both eligible and non-eligible generators. The tariffs propose a credit methodology that is contrary to Decision (D).05-08-013 (the Decision) and the California Public Utilities Code Section 2827 *et seq* (PUC 2827 or the Code). Certain proposed technical provisions are unnecessary where duplicated in existing tariffs, or if necessary may be added to existing tariffs.

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<sup>1</sup> Terminology herein is consistent with Public Utilities Code Section 2827 *et seq*

All three utilities should submit a uniform revision of existing NEM and associated tariffs and forms to facilitate consistent implementation statewide.

## **BACKGROUND**

PUC 2827 allows a customer with an eligible self generation facility to receive bill credits for excess energy production, which can then be used to offset onsite consumption of electricity purchased from the utility. It does not address how to credit net energy fed back to the grid (exported) by generating facilities which combine on one account generators that are eligible for a Net Energy Metered (NEM) tariff, such as a photovoltaic array, with ones that are ineligible for NEM, for example, fossil-fuelled microturbines.

Under PUC 2827, solar generators up to 1 MW capacity and wind generators up to 50 kW capacity are credited each month at the bundled rate for net energy exported to the grid. These credits accrue for a 12-month period, at the end of which the utility is required to apply them against the customer's bill for energy supplied by the utility. Wind generators above 50 kW and Biogas and Fuel Cell generators up to 1 MW capacity are credited for just the energy component of the otherwise-applicable-tariff (OAT) rate. If the customer is a net consumer, the customer pays the difference between onsite production credits and consumption costs. If the customer is a net producer, the customer owes nothing to the utility, and no payment is made by the utility for excess credits over consumption charges.

Decision (D). 03-02-068 affirmed that NEM-eligible generators connected to the same service account with nonNEM-eligible generators are eligible for NEM tariffs for the eligible generators but the nonNEM-eligible generators are not.

A variety of physical schemes can be used to ensure the customer receives full credit for NEM-eligible energy production, and no credit for ineligible energy production. The Commission delegated to the CEC the task of developing ways to accommodate customers who install combined generating facilities. The CEC, in consultation with the Rule 21 Interconnection Working Group<sup>2</sup>, filed recommended

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<sup>2</sup> A working group under the auspices of the Commission and the California Energy Commission to develop and refine the utilities' Rule 21, *Interconnection of Generating*

*Footnote continued on next page*

protocols<sup>3</sup> with the Commission which were ultimately adopted in D.05-08-013. The Decision's Ordering Paragraph (OP) 2, Bullet 5 adopted "three protections to assure ratepayer protection while furthering the state's general goal of promoting renewable energy technologies":

1. Any energy generated by the renewable DG that exceeds the customer's annual energy usage will not be compensated as renewable DG;
2. In no event will nonnet metering generators receive credits designed for NEM projects; and
3. Any DG owner operating under two tariffs must install at its cost individual meters for the separate generators or breakers that prevent export from the nonnet metering generator. Otherwise, for DG facilities that operate under two tariffs applicable to different technologies, utility tariffs should prohibit any provision or methodology that prevents export from an NEM generator even if the nonNEM generator is operating".

For generating facilities comprised of eligible and noneligible generators without nonexport relay there are at least two methods to credit net energy exported against net energy consumed, as described below. Each method meets the three protections described above. However, one method may prevent customers from receiving full credit for energy produced by an NEM-eligible generator when it operates simultaneously with a nonNEM generator.

The two methods are:

In Method 1 or Pro-rating the net energy from combined generating facilities (NEM and nonNEM), is assumed to be exported to the utility system on a pro rata basis of each generator's energy output during the interval period (typically 15 minutes), in relation to the total energy output of all generators during the period. The monetary credit for the net energy exported by the

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*Facilities.* The group is comprised of utility personnel, CPUC and CEC staff, and DG customers, developers, and manufacturers.

<sup>3</sup> *Recommended Changes to Interconnection Rules*, CEC-100-2005-003-CTF, January 2005.

NEM-eligible generators is calculated in proportion to their share of the total energy generated by the combined facility in each interval. This method requires interval meters to determine when the energy was produced.

Method 2 or Stacking –assigns the net energy exported from a combined facility first to the NEM-eligible generator. The remainder of the exported energy is assigned to the nonNEM eligible generator. The customer is assured of receiving full credit for NEM-eligible electricity production, and no credit for the ineligible production. Because the annual energy export credit of the NEM-eligible generators is limited to the lesser of the actual production of such generators or the customer’s consumption, it does not matter whether generation and consumption are coincident.

This method does not require interval metering. It can be administered utilizing three meters: a net generation (energy) output meter (NGOM) on the eligible generator(s), a consumption meter which measures energy consumed by the customer, and a utility revenue meter, which measures energy purchased from the utility.

PG&E, SCE, and SDG&E propose tariffs which adopt Method 1 or Pro-rating.

SDG&E also proposed, but does not favor, an alternate tariff (B), which implements Method 2 or Stacking. SCE describes Method 2 or Stacking, but does not include an alternate tariff.

PG&E also proposes a prioritization scheme to attribute energy credits from multiple NEM-eligible generators, and revisions to the existing NEM tariffs to 1) delete restrictions on eligibility for multiple NEM tariffs and to 2) coordinate the true-up periods of aggregated accounts under Schedule NEMBIO.

SCE propose several new interconnection-related documents.

SCE’s and PG&E’s ALs include minor changes to the Standby tariffs (Schedule S) to exclude load served from NEM-eligible customer generators from standby charges, as required by PUC 2827.

All three utilities propose to require a utility-owned revenue grade interval-type NGOM on each generator.

## **NOTICE**

Notice of AL 2793 -E, AL 1969 and AL 1777-E was made by publication in the Commission's Daily Calendar. PG&E, SCE and SDG&E state that a copy of the Advice Letter was mailed and distributed in accordance with Section III-G of General Order 96-A.

## **PROTESTS**

Advice Letters AL 2793-E, AL 1969-E and 1777-E were timely protested by the City of San Diego (City) on March 13, 2006.

SDG&E's AL 1777-E was protested two days late by the Commission's Division of Ratepayer Advocates (DRA) on March 22, 2006.

SDG&E responded to City's protest on March 20, 2006.

SCE responded to City's protest on March 21, 2006.

PG&E responded to City's and DRA's protests on March 27, 2006.

SDG&E responded to DRA's protest on March 29, 2006.

## **DISCUSSION**

In sum, per PUC 2827 a customer with only a NEM-eligible generator receives credit for the full export of energy to the grid. The "green" energy is preferred or "stacked" over the "non-green" energy from the grid. The "green" credit is deducted first (in the stack) from his consumption charge over 12 months.

This policy should not change for a customer who employs in addition a non-NEM eligible (fossil) generator. The latter can be viewed as negative load.

"Prorating" credits only part of the energy exported. It may reflect physics but removes the flexibility afforded by PUC 2827 to offset against consumption charges all NEM energy exported over 12 months. PUC 2827 does not mandate that load and production must be offset simultaneously.

### **City of San Diego's Protest**

City opposes Method 1 or Pro-rating, citing the CEC report's conclusion that by preventing power exports from a NEM-eligible generator which operates concurrently with a noneligible generator, Method 1 or Pro-rating limits economic

benefits, reduces operating efficiency, and runs counter to the state's need for additional generation.

City points out that the original intent of PUC 2827 has changed with the expansion of the net energy metering program by the passage of Senate Bill 28X1.

City also protests SDG&E's proposed 3-month delay of effective date if the alternate tariff (B) is adopted.

SDG&E's Response to City's protest:

SDG&E claims D.05-08-013 "generally supported the CEC's conclusion on this matter" but did not adopt the CEC report in its entirety. SDG&E does not endorse Method 1 or Pro-rating because of the potential adverse rate impact to nonparticipant customers by artificially increasing the NEM subsidy. SDG&E is in the process of automating its NEM billing system. SDG&E states that incorporating the new tariff would require an additional three months due to its complexity.

Division of Ratepayer Advocate's (DRA) protest

DRA rejects Method 1 or Prorating because it has the potential to minimize customer use of available incentives for NEM-qualified clean and green generation technologies. DRA favors Method 2 or Stacking, stating that it better reflects the actual generation characteristics for the renewable energy systems, can be done economically, and is more in line with the CEC recommendations.

SDG&E's response to DRA's protest

SDG&E corrects DRA's misunderstanding that prorating would be in proportion to the generators' capacities; instead it would be in proportion to the actual output of the generators.

SCE Response to City's protest

SCE clarifies that the proposed tariff does not prevent a NEM-eligible generator from exporting power to the grid. City confuses the ability to export (which is required by the Decision) with the right to NEM credit (which is only permitted for energy exported from an NEM-eligible generator).

SCE mentions that City's proposal does not propose ways to credit energy produced by multiple NEM-eligible generators operating under different tariffs

and asserts that Method 2 or Stacking is in direct conflict with safeguards adopted in the Decision.

SCE acknowledges that PUC 2827 limits NEM energy credits to (caps credits at) the lesser of charges for annual consumption or the value of NEM generator output.

PG&E's response to City's and DRA's protests

PG&E echoes SDG&E's response that the Commission did not reject Method 1 or Pro-rating. Furthermore, D.05-08-013 incorporated the three safeguards in response to SCE's concerns about uneconomic dispatch.

PG&E asserts Method 1 or Pro-rating reflects the physical reality of power flow and that Method 2 or Stacking affords benefits to nonNEM-eligible generators in violation of the Decision.

PG&E rejects DRA's argument that Method 1 or Pro-rating may create disincentives for clean renewable generation technologies, stating the Commission considered this issue and determined that the goal of encouraging renewable generation should be balanced with concerns about uneconomic dispatch and inappropriate cost shifting resulting from Method 2 or Stacking.

Analysis

The Decision did not adopt the CEC cost allocation recommendations for required distribution system modifications. This issue is unrelated to the CEC recommendations to develop a credit method for generating facilities with NEM and nonNEM eligible generators, which was adopted by the Commission.

By adopting the three protections described earlier, the Commission did not state that energy from the nonNEM eligible generator could not be exported under any circumstance; rather it stated that it could not be credited against net consumption.

Method 2 or Stacking does not artificially increase the NEM subsidy, as the NEM-eligible generator must actually generate the energy credited within a year, and the credit is limited to no more than the customer's onsite energy consumption.

Method 1 or Pro-rating essentially denies the customer the opportunity to accumulate and use credit at any time, for all energy actually produced by NEM-eligible generators. PUC 2728 is not based on the physics of power flow.

SCE states that "... any customer who desires to ensure that it receives full billing credit (emphasis added) for its NEM eligible generator(s), independent of a metering methodology, is afforded the alternative of installing nonexport breakers on its nonNEM generator(s), thus ensuring that only NEM-eligible power is exported to the utility grid."

PUC 2827 is the "net-energy law", not the "net power law." Therefore PUC 2827 specifies one year for the true up of the dollar value of export energy credit against net energy consumption charges, as carried forward monthly. D.05-08-013 implemented policy in agreement with PUC 2827 and the California Energy Action Plan loading order that prefers renewable energy generation over other energy generation.

D.05-08-013 OP 2, Bullet 5(2) prohibits "export" from a nonNEM-eligible generator. This can only mean "export for credit", because without credit it would be meaningless, and the decision acknowledges export by allowing the metering option in addition to the nonexport breaker (relay) option.

There are strong economic disincentives against gaming with multiple tariff Generating Facilities (GFs). Because of the high cost of especially solar NEM-eligible generators, there is no incentive for a customer to oversize them, because any net credit is not carried forward or paid out by the utility at the end of a year's time. A customer will also have to consider the efficiency loss of a nonNEM-eligible (fossil fuelled) generator that operates only at reduced power or partial time when an oversized NEM-eligible generator operates on the same meter/account. D.05-08-013, Section VI, places on the customer the cost to modify the utility distribution system to allow the nonNEM-eligible generator to export energy.

It may be more economical for a customer with a small solar and/or wind generator and larger other NEM-eligible generators (Biogas, Fuel Cell), in addition to nonNEM-eligible generators, to pay for only one combined NGOM and have all NEM-eligible energy export credited for energy only. This option should be offered to customers, if technically feasible, and would also simplify utility billing. A customer is allowed to take advantage of the overall most economical tariff for its class and situation if it does not harm ratepayers. Individual or grouped meters are still options for determining the credits from NEM-eligible generators under different tariffs.



Only solar and small (<50 kW) wind generators get credited at the bundled rate for exported energy. TOU meters for these generators are not required per PUC 2827.

Because there are no new types of calculations (pro-rationing) required with the stacking method of crediting and no new tariffs to be implemented, we agree with City, that a delay by SDG&E to implement crediting energy exported from NEM-eligible generators in a multiple tariff generating facility is not warranted.

The proposed NEM-CT tariffs should exclude in the Applicability Section the nonexport breaker (relay) option and the regular (noninterval) NGOM with load meter option. Any new NEM-CT tariff or modifications to existing NEM tariffs, must exclude those options from pro-rating, if approved. These options should be included in Rule 21.

The proposed NEM-CT tariffs require NGOM on the nonNEM-eligible generators. Since such meters would only be required for the prorating method, in case of a power purchase agreement, to administer OAT, or for operational reasons, they are not mandatory in this tariff. Furthermore, the Summary of Decision, Bullet 1 states that "We retain existing rules and tariffs which address the circumstances under which DGs receiving publicly-funded incentives or tariff exemptions must install NGOM equipment". Those existing rules are in Rules 21, Section F.3 and provide other options to utility owned/grade NGOMs for tariff administration of generators under any tariff. Section F does not distinguish between DGs that receive incentives or not. Therefore, the existing NEM tariffs need to be revised to refer to Rule 21 for NGOM requirements/options. NGOM required for verifying subsidy eligibility or performance monitoring is not part of the NEM tariffs and specified in the applicable program manuals.

PG&E commented on DRA's failure to propose rules for prioritizing energy credit for export from NEM-eligible generators under multiple tariffs. PG&E provided such a prioritization under Special Conditions 5. However such prioritization for usage is meaningless, because all energy consumed is charged at the bundled rate and consumption charges are offset by dollar credits which are not differentiated by TOU when energy is exported. The only restriction is that dairy biogas generated energy credits can be used for aggregated accounts. This provision is already contained in the applicable NEM-BIO tariff.

PG&E's proposed changes to Schedule S, Standby Service, Special Condition 4, needs correction because the prohibition of meters with reverse registration for

NEM-eligible generators is contrary to PUC 2827. Special Conditions 7.a and 7.c also need to exempt NEM and DER (Distributed Energy Resources) from the “generation” and “alternate power source”, respectively. Special Condition 12 needs to add NEM generator capacity as qualifying for standby exemption, because the reference to DER in Rule 1 does not include NEM-eligible generators.

SCE’s single GF Interconnection Agreement (GFIA) for all combinations of NEM and nonNEM-eligible generators is a positive simplification. We encourage all utilities to consider such a combined GFIA with each individual customer, but not a combined tariff applicable to all customers, as explained herein. Nor should a single GFIA template refer to a “Combined Technology” GF because it should serve any GF with or without multiple tariffs, and must also cover all provisions in existing NEM agreements. Definitions should refer to Rule 21. The GFIA should clarify that a separate agreement is needed for power purchase by the utility, and the liability insurance requirements for NEM-eligible generators should comply with PUC 2827(j).

SCE’s proposed GF Interconnection Agreement for Combined Technology (GFIA-CT), Section 5.2 is in conflict with the very essence of operation of a GF with NEM-eligible and noneligible generators, no matter which crediting method is used. This section prohibits power delivered from the nonNEM-eligible generator to be used other than for the load of the service account to which it is connected. The term “power” is incorrect in this instance, because only the net “energy” exported from the NEM-eligible generators, up to the lesser of their actual output in a year’s time or the annual load, is the limit for credits. “Power” is an instantaneous measure and may at times be exported, from a nonNEM-eligible generator without nonexport relay, to other customers.

## **COMMENTS**

Public Utilities Code section 311(g) (1) provides that this resolution must be served on all parties and subject to at least 30 days public review and comment prior to a vote of the Commission. Section 311(g) (2) provides that this 30-day period may be reduced or waived upon the stipulation of all parties in the proceeding.

The 30-day comment period for the draft of this resolution was neither waived nor reduced. Accordingly, this draft resolution was mailed to parties for comments.

Comments on the DRAFT Resolution were received from SCE, SDG&E and PG&E on May 8, 2006.

No replies to the comments were received.

Following are summaries and discussion of the comments:

### **SCE's Comments**

Of the 24 items in SCE's "Subject Index of Recommended Changes" to the DRAFT Resolution, we accept SCE's recommended changes 1, 3, 4, 5, 7, 8, 9 and 24. They are incorporated without discussion as they do not affect the analysis.

The remainder of SCE's recommended changes are rejected as explained below:

Recommended change #2 We agree with SCE that all but residential and small commercial customer generators must pay applicable charges on a monthly basis. However, SCE's practice of applying the energy credit of large customer generators only to subsequent charges to the end of the 12 month period is questionable and shall be further explored outside this resolution.

Recommended changes #6, 10, 11, 14 and 18 SCE's proposed Schedule CT-NEM, Special Condition 2 erroneously requires **TOU** NGOM on all NEM-eligible and noneligible generators for accomplishing the pro-rating method of export energy crediting. SCE most likely means **interval** NGOM instead. PUC 2827 does not require offsetting power (kW) consumed by the load with power (kW) generated by the NEM-eligible generator before multiplying with time to obtain the energy (kWh) credited or charged (pro-rating). It allows independent energy (kWh) generation and consumption over and at different time periods (stacking). Text of the Draft Resolution is corrected to show the correct term "interval" in lieu of "TOU", as appropriate.

Recommended change #11: The draft resolution is not allowing credit for noneligible energy generated and ignoring energy consumed by onside load fed by the eligible generator. The misunderstanding stems from SCE's terms "generation" and "load" instead of "energy generated" and "energy consumed".

Recommended change #12, 14 and 18: We do not deny that the pro-rating method allows the customer to accumulate *some* credit for eligible energy exported and that this method represents the physics of power flow. However, the pro-rating

method does not allow *all eligible* energy export within a year to be accumulated for credit against consumption, per PUC 2827(b) (3).

Recommended change #13: See above for response and PUC 2827(b) (3), where “*electricity* over a 12 month period” means “*energy* over a 12 month period”.

Recommended change #15: We changed “admitted” to “stated”

Recommended change #16: We acknowledge that unsophisticated customers may be persuaded to uneconomically oversize their solar generators, but those are usually small users installing only NEM-eligible generators.

Recommended change #17: Providing a customer an option which is advantageous to all parties and does not harm ratepayers is allowable. We amended “if technically feasible”

Recommended change #19: With the pro-rating method, a new type of billing routine would be required whereas the stacking method uses the existing tariffs, amended to refer to other existing tariffs for multiple tariff generating facilities. There is no new technology, just use of existing ones in parallel. The capacity limit and insurance limits would have to be clarified as applying to the entire generating facility in case of multiple generators.

Recommended change #20: We acknowledge that SCE’s proposed tariff does include the nonexport breaker option, but this should be stated as exempting the generator from the Combined Technology tariff in the Applicability section, should such be approved.

Recommended change #21 and 22: While it is generally true that individual interval meters for separate generators are required for the pro-rating method, an interval load meter could be used as substitute for one of them. For the stacking method, such meters need not be interval type. Decision OP 2 is contrasting a metering option versus the nonexport breaker option and not overruling existing alternates in Rule 21, Section F.3.

Recommended change # 23: When applying the stacking method, SCE’s proposed new Combined Technology GFIA would not be more complicated, but include all variations of GFs under multiple tariffs. The title would have to change though.

Other SCE comments:

SCE provides an example of five days of operation of a combined tariff (NEM and nonNEM) GF, purportedly providing NEM credit treatment to nonNEM generation. However if the five days would be considered the one year period, the customer would not get any credit, because it did not consume more than the NEM-eligible generator produced. In effect the utility would obtain the excess energy without compensation to the customer. PUC 2827 prohibits NEM credits for fossil-fuelled generation on an annual energy basis, not on an instantaneous power basis. The decision did not have to repeat this policy, as SCE suggests. SCE raises the treatment of QFs but they receive only compensation for energy and pay bundled rates for consumption. Displacing the value of their energy with the value of their bundled consumption charges is therefore beneficial for the utility.

SCE's comments about metering requirements were dealt with in Resolution E-3996. The stacking method for energy export crediting adopted herein does not require a new NEM tariff. Therefore the metering issues for multiple (existing) NEM tariffs should be addressed in existing metering sections of Rule 21.

**SDG&E's Comments**

Each Comment is abbreviated as underlined and explained following it.

SDG&E asserts that the Stacking method violates PUC 2827: PUC 2827 considers only eligible generators and credits all energy eligible 12 months regardless of concurrent load. The Stacking method considers eligible and noneligible generators but also credits all eligible energy in compliance with, not in violation of PUC 2827.

TOU metering is essential for either method: SDG&E equates "TOU" with "interval". Under PUC 2827 TOU metering is only required by wind generators over 50 kW, fuel cell and biogas generators. TOU metering may also be required by the OAT. Interval metering is not required as long as the energy production by the NEM-eligible generators and the consumption of the load is metered and their values determined each billing cycle. This is the current metering requirement per PUC 2827 for solar and small wind generators.

Energy generation and consumption Example 1: SDG&E uses the term "TOU" but based on the context of their comment must mean "interval" meter which is a different type of meter. SDG&E would make credits subject to concurrent

consumption, where PUC 2827 allows one year for using the credits against consumption charges.

Energy generation and consumption Example 2: The same error in terminology is made in SDG&E's Example 2 which ignores the 12-month period in which credit is capped by the consumption.

Requirement for only one NGOM for multiple generators under the same tariff should be specified within the tariffs. SDG&E agrees with the Commission.

Draft OP 3, 4 and 5 should be deleted because the Rule 21 Working Group did not address them: The Commission in Resolution E-3996, June 15, 2006 adopted metering requirements consistent with Draft OP 3 which the Rule 21 working group discussed.

Draft OP 4 and 5 implement within Rule 21 rather than in individual tariff schedules the metering requirements adopted by the Commission.

SDG&E Asserts No Netting of Exported Energy on an Annual Basis: SDG&E pointed out correctly that the exported energy is credited in dollars monthly and carried forward to offset charges for net consumption in a year and this intent is clarified.

SDG&E asserts the "stacking" method will require new calculation: Under Pro-rating this is true but the existing NEM credit calculation will remain the same under the Stacking method.

SDG&E asserts that its tariffs already include the nonexport breaker (relay) option: If the Combined Technology tariff is approved then this option should be stated in the Applicability section.

SDG&E asserts that provisions for Combined Technologies should not be incorporated into existing NEM tariffs: On the contrary having multiple generators under multiple tariffs is not a "new technology." With the stacking method in particular, there is no new provision in the existing NEM tariffs required to accommodate them. There are some clarifications and references required in each NEM tariff regarding the capacity and insurance limits as applying to the entire GF, and a reference to Rule 21 should be added for the metering and nonexport relay options. Any new "Combined Technology" tariff would need to repeat all provisions of all existing NEM tariffs.

### **PG&E's Comments**

PG&E asserts that the Stacking method of energy crediting is a fiction (Point 5): PUC 2827 is silent regarding the physical reality of power flow. Instead the Code allows the value of all exported energy (integrated power of *any* magnitude over *all* time periods) to be offset against energy consumption charges, limited only to the total energy produced by the NEM-eligible generator in 12 months. PUC 2827 therefore favors (stacks) the NEM energy production over others and allows the value of *all* that energy to be offset against consumption charges accrued *anytime* during a year. The directive in D.05-08-013 that "in no event will nonNEM generators receive credits designed for NEM projects" is therefore met on an annual basis. Interval metering is just one of the methods to meet PUC 2827 and D.05-08-013 for GFs with multiple NEM and nonNEM-eligible generators.

Interval metering is the only way to administer tariffs for "combined technology" GFs without nonexport relay (Point 2): With the Stacking method of export energy crediting, interval metering may be used but is not needed to meet the requirements of PUC 2827; namely, that the value of the energy exported by the NEM-eligible generator or the value of the energy consumed from the utility over 12 months, whichever is less, is credited.

For three unknown energies (NEM generator output, load consumption and energy export), three meters are required (NGOM on NEM-eligible generator, load consumption meter, utility export/import meter). These meters register the kWh over a billing period and the charge or credit is calculated in dollars. Under Stacking, if nonNEM-eligible energy should be booked in a month no violation of PUC 2827 would occur because it would be forfeited unless the NEM-eligible generator produced an equal amount in a different month.

PG&E's examples overlook the requirement for a load consumption meter in the absence of interval metering. This Resolution does not reject interval metering, but only the pro-rationing of exported energy. Interval metering is required for Pro-rating and may be used with Stacking. In a GF without nonNEM-eligible generators able to export, the utility meter takes the place of the load meter.

PUC 2827 does not allow gaming (Point 3): The fact that energy exported at one time interval from a nonNEM-eligible generator has to be made up within a year by energy at another time interval from the NEM-eligible generator, in order to obtain credit, dispels the notion that "dirty generation" is obtaining credit. PUC 2827 does

not say when the NEM-eligible generator has to generate during the year in order to receive credits for export.

Treatment of credits from NEM-eligible generators under different tariffs should be addressed (Point 4): PG&E's proposed "prioritizing order" for NEM energy export credits is not required, because credits are in dollars and energy consumption charges are based on the bundled rate. Monetary credits are not differentiated by the time when the energy is produced.

Separate tariff for GFs with NEM-eligible and noneligible generators: See analysis of SDG&E's last comment on this subject.

## **FINDINGS**

1. Decision (D.) 05-08-013 (Decision) adopted the CEC's recommendation for Method 2 or Stacking, which "stacks" the energy exported from NEM-eligible generators over the energy exported from nonNEM-eligible generators on the same account.
2. The Decision did not adopt the CEC's recommendation to relieve customers with GFs consisting of NEM and nonNEM-eligible generators, from costs incurred for distribution system modifications attributable to the nonNEM-eligible generators.
3. The three safeguards in the Decision against crediting energy export from nonNEM eligible generators apply regardless of which crediting method is used.
4. The Decision does not prohibit a nonNEM-eligible generator from exporting energy, but does prohibit a customer from receiving credit for energy exported from a nonNEM-eligible generator.
5. Method 2 or Stacking does not provide additional or artificial subsidies to NEM-eligible energy exported by a GF with multiple NEM/nonNEM-eligible generators because the NEM-eligible energy is capped by the value of the smaller of the actual annual energy output of the NEM-eligible generators or the consumption on the same account, per Public Utilities Code Section PUC 2827.



6. Method 1 or Pro-rating forces a customer to use some portion of the NEM-eligible energy at the time it is generated. This approach conflicts with PUC 2827, which allows a customer to offset energy consumption charges with the credit for energy production over a 12-month period.
7. Method 2 or Stacking is consistent with the loading order adopted by the Commission in the Energy Action Plan.
8. PUC 2827 articulates a billing process for net energy metering which favors renewables, but it does not reflect actual power flow.
9. Requirements to prevent a nonNEM-eligible generator from exporting energy to the grid without restricting the generator from serving customer load and requirements which provide the customer option to install Rule 22 compliant meters or utility meters, are already contained in Rule 21, Sections I and F, respectively, and/or are proposed in pending ALs (SCE 1971-E, SDG&E 1776-E, PG&E 2792-E).
10. Existing disincentives to “gaming the system” with GFs under multiple tariffs include:
  - Limitations on carry-over of credits to the following year,
  - The relatively high cost of NEM-eligible generators,
  - Costs for distribution system modifications attributable to nonNEM-eligible generators,
  - Reduced efficiency of nonNEM-eligible generators operating at partial load or time.
11. The proposed NEM-CT tariffs contain few provisions not already in existing NEM tariffs or Rule 21, except for the pro-rating of NEM-eligible energy credits, and are therefore not necessary. The necessary additions can be incorporated into existing tariffs and rules.
12. PG&E’s proposed “prioritizing order” for NEM energy export credits is not required, because credits are in dollars and energy consumption charges are based on the bundled rate. Monetary credits are not differentiated by the time when the energy is produced.
13. Method 2 or Stacking does not require a new calculation methodology. The existing NEM tariffs can be amended to incorporate provisions for

combined GFs. Considerable time has passed since the utilities filed the ALs. SDG&E's request for a three- month delay to implement Method 2 beyond the effective date ordered in this resolution is not warranted.

14. In the absence of a nonexport relay at nonNEM-eligible generators a TOU or real-time NGOM installed at the NEM-eligible generators in addition to the utility meter for tariff administration of multiple GFs. is only one scheme available to comply with PUC 2827 and with the Decision.
15. For GFs comprised solely of wind generators under 50 kW aggregate capacity and/or solar generators for the balance of 1 MW total NEM-eligible capacity, the monthly energy true-up can be accomplished by a simple metering scheme. This scheme employs one regular NGOM for the NEM-eligible generator(s), and one regular energy consumption meter at the load, in addition to a reversible or bi-directional utility meter, per PUC 2827(b) (3). This is subject to any TOU metering requirements per the OAT.
16. The option of installing a nonexport relay to prevent nonNEM-eligible energy from obtaining NEM credit is not proposed in tariff Applicability sections and accompanying Generating Facility Interconnection Agreements (GFIA).
17. Method 2 or Stacking does not require NGOMs at the nonNEM-eligible generator, with or without nonexport relay, for tariff administration of a combined GF without a power purchase agreement.
18. Separate metering by a NGOM is not required for each individual generator but only for each group of NEM-eligible generators under the same type of NEM tariff either bundled rate or energy-only.
19. The Decision (p.3) states that the receipt of "regulated subsidy or tariff exemption" by generators (DG) does not change the requirements when metering equipment is required as currently shown in Rule 21 Section F.
20. Rule 21 Section F:
  - Does not distinguish between "subsidized" and "nonsubsidized" DG; and
  - Permits options other than utility-owned/ utility-grade NGOMs for certain tariffs.

21. The Decision adopted the CEC recommendation that NGOMs need not be utility-owned if the meters conform to the requirements of Rule 22. This option applies to GFs with multiple NEM-eligible and/or nonNEM-eligible generators and was approved by resolution E-3996 (ALs SCE 1971-E, SDG&E 1776 and PG&E 2792-E (Revisions to Rule 21)).
22. GFs with multiple NEM-eligible and/or nonNEM-eligible generators, without nonexport relay, may require interconnection studies, additional interconnection facilities and distribution system modifications for the total rated or limited export capacity of the GF.
23. Cost allocation for interconnection studies and distribution system modifications is prescribed by D. 02-03-057 and D.03-02-068. The Decision Section VI confirms that nonNEM-eligible generators are not exempt from those costs, subject to future Commission decisions. The Decision also allocates liability for costs that cannot be readily attributed to the nonNEM-eligible generators according to the generators' shares of annual expected energy to that generated by the entire GF.
24. If technically feasible, it is reasonable to allow a customer to aggregate all NEM-eligible generators under an "energy component-only" NEM tariff to avoid extra meter costs for relatively small bundled rate credits.
25. A single interconnection agreement for multiple GFs is preferred, in order to avoid duplication and contradictions. It should contain all provisions of the existing NEM agreements.
26. SCE's proposed GFIA-CT prohibits use by others of power exported by nonNEM-eligible generators.
27. SCE's proposed GFIA-CT violates PUC 2827 (j) by requiring additional insurance for NEM-eligible generators.
28. Language in the proposed tariffs is not consistent or accurate with regards to the use of the words "power", "energy", "electricity", "combined technology", and "multiple tariffs".

**THEREFORE IT IS ORDERED THAT:**

1. The proposed tariffs and alternates, NEM-CT (CT-NEM for SCE), shall be replaced by incorporating Method 2 in existing NEM tariffs. The requirement for NGOMs at the nonNEM-eligible generators shall be deleted, unless required for OATs, operational purposes or with a power purchase agreement. The proposed NGOM requirements and options shall be referred to and incorporated into Rule 21.
2. The existing NEM tariffs (for PG&E NEM, NEMFC and NEMBIO; similar for SCE and SDG&E) shall be revised to incorporate that:
  - Rule 21 requires only a single NGOM for each group of multiple NEM-eligible generators under the same tariff;
  - A NGOM on the NEM-eligible generator group and/or a load meter may be required if a nonNEM-eligible generator group is connected on the same service account without a nonexport relay.
  - NEM-eligible and nonNEM-eligible generators may operate on the same service account.
  - NEM-eligible generator capacity on one account may total 1 MW.
  - Liability insurance requirements for NEM tariffs shall be per PUC 2827 (j).
  - The liability insurance requirement for nonNEM-eligible generators shall apply to the aggregate capacity of all generators on a single account.
3. Rule 21, Section F.3 shall be revised to make the proposed option (PG&E AL 2792-E, SCE AL 1971-E, SDG&E AL 1776-E) for Rule 22 (SDG&E Rule 25) NGOM requirements applicable to NEM-eligible generators in a GF under multiple tariffs, as stated in the Decision Summary.
4. Rule 21, Section I shall refer to Section F for NGOM requirements in GFs comprising nonNEM-eligible generators without nonexport relay. The cost allocations for interconnection studies and distribution system modifications shall be revised to comply with D.02-03-057, D. 03-02-068 and D. 05-08-013.
5. Rule 21, Section F shall contain all three NGOM options:
  - Interval meter as proposed;

- Alternate reversible or bi-directional meter option per Finding 15; and
  - Customer-selected option per Finding 15 for energy-only credit from a group of NEM-eligible generators metered by a NGOM.
6. PG&E's proposal (Special Conditions 5) to prioritize how NEM energy export credits under multiple tariffs are applied to consumption charges shall be deleted. Existing NEM tariffs shall be amended to state that energy credits cannot be used on aggregated accounts of the GF unless generated by dairy Biogas generators.
  7. The existing GF Interconnection Agreements shall be revised to reference the technical data in the Applications for Interconnection, and shall incorporate any changes and Appendices required for GFs with multiple NEM-eligible and/or noneligible generators.
  8. Standby and other tariffs affected by this resolution including PG&E's shall be revised consistent with this Resolution.
  9. Terminology shall be accurate and uniform within tariffs and among utilities, for example in the use of *power* versus *energy*, and shall avoid ambiguous terms, for example *electricity*
  10. Above Ordering Paragraphs shall be incorporated by and become effective for PG&E, SCE and SDG&E within 30 days of the effective date of this resolution.

This Resolution is effective today.

I certify that the foregoing resolution was duly introduced, passed and adopted at a conference of the Public Utilities Commission of the State of California held on July 20, 2006; the following Commissioners voting favorably thereon:

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STEVE LARSON  
Executive Director